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09/756,722	01/10/2001	Boris Galitsky	1964.0010001	6954

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EXAMINER

VO, HUYEN X

ART UNIT PAPER NUMBER

2655

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/756,722

Applicant(s)

GALITSKY ET AL.

Examiner

Huyen Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1/10/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3,6, 16-17, 23-24, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Braden-Harder et al. (US Patent No. 5933822).

3. Regarding claims 1 and 23, Braden-Harder et al. disclose a method of providing an answer, in a poorly formalized domain, to a natural language query, and a computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for causing an application program to execute on a computer that provides an answer, in a poorly formalized domain, to a natural language query, said computer readable program code means, the method and computer program comprising the steps of:

(a) building a translation formula based on the query (*col. 9-21*);

(b) matching the translation formula with a semantic header derived from the domain (*col. 15, ln. 21 to col. 16, ln. 46*); and

(c) extracting the answer from the domain (*col. 15, ln. 21-35 or referring to figure 6A-B*).

4. Regarding claims 2 and 24, Braden-Harder et al. further disclose that the step of (d) creating the semantic header for the answer, performed before step (b) (*blocks 635 and 640 in figure 6A or col. 15, ln. 21-63*).

5. Regarding claim 3, Braden-Harder et al. further disclose that the step (d) comprises the steps of:

(i) identifying expected queries with respect to the domain (*col. 15, ln. 21-30, the search engine at the remote server searches its database and determines probable matches and transmit these probable matched documents to the client machine for further analysis*);

(ii) creating a graph of the domain structure (*col. 15, ln. 30-63, the natural language processing (NLP) block process the document in a similar fashion as process the input query discussed in col. 13, ln. 51 to col. 14, ln. 49*);

(iii) determining sub-graphs of the classification graph in accordance with the expected queries (*col. 11, ln. 42 to col. 12, ln. 46*); and

(iv) creating a semantic header for each question (*col. 13, ln. 51 to col. 14, ln. 49*).

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6. Regarding claim 6, Braden-Harder et al. further disclose the steps of (d) displaying the answer (*col. 16, ln. 31-46*).
7. Regarding claims 16-17, Braden-Harder et al. further disclose that the step (a) comprises the steps of processing logical connectives in the translation formula (*figure 5B, "and" is a logical connective and is processed and yield in a logical form graph*), and re-ordering the predicates of the translation formula according to procedural semantics (*col. 14, ln. 15-49 or referring to figures 5A-D*).
8. Regarding claim 26, Braden-Harder et al. further disclose (d) computer readable program code means for causing the computer to display the answer (*element 670 of figure 6B*).

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4-5, 7-15, 18, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (US Patent No. 5933822) in view of Li et al. (US Patent No. 6175829).

11. Claims 4 and 7 are dependent on claim 1 and claim 25 is dependent on claim 23. Claims 1 and 23 are anticipated by Braden-Harder et al. for the reasons noted above in the 102(e) rejection.

12. Regarding claims 4 and 25, Braden-Harder et al. do not disclose the step of (d) clarifying the query, performed after step (b). However, Li et al. teach disclose the step of (d) clarifying the query, performed after step (b) (*col. 5, ln. 48 to col. 6, ln. 12*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to modify Braden-Harder et al. by incorporating the teaching of Li et al. in order to enable the system to extract relevant information.

13. Regarding claim 5, Braden-Harder et al. do not disclose the step (d) comprises the steps of (i) determining entities, from a predetermined set of entities, that could instantiate an uninstantiated expression in the translation formula; (ii) presenting the determined entities to a user; and (iii) receiving an indication from the user of a chosen entity. However, Li et al. further teach the steps of (i) determining entities, from a predetermined set of entities, that could instantiate an uninstantiated expression in the translation formula (*col. 8, ln. 49-67*); (ii) presenting the determined entities to a user (*col. 5, ln. 55-67*); and (iii) receiving an indication from the user of a chosen entity (*col. 5, ln. 31-47, formulated queries or entities are provided to users for selection*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Braden-Harder et al. by incorporating the teaching of Li et al. in order to allow and suggest users how to reformulate the search query to retrieve desired information.

14. Regarding claims 7 and 27, Braden-Harder et al. further disclose the step (a) comprises the steps of: (i) performing concept extraction from the domain, based on the translation formula (*col. 7, ln. 35-55*). Braden-Harder et al. do not disclose the step of (ii) controlling the generality of the translation formula. However, Li et al. teach the step of (ii) controlling the generality of the translation formula (*col. 5, ln. 48 to col. 6, ln. 12*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to modify Braden-Harder et al. by incorporating the teaching of Li et al. in order to allow and suggest users how to reformulate the search query to retrieve desired information.

15. Regarding claim 8, Braden-Harder et al. further disclose the step (a) further comprises the step of (iii) normalizing a word of the translation formula, performed before step (i) (*col. 12, ln. 30-45*).

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16. Regarding claims 9-10, Braden-Harder et al. do not disclose the step (a) further comprises the step of: (iii) substituting a synonym for a word of the translation formula, performed before step (i), and (iii) substituting for a metapredicate in the translation formula, performed after step (i). However, Li et al. further teach the step of: (iii) substituting a synonym for a word of the translation formula, performed before step (i) (*col. 8, ln. 49-67*), and (iii) substituting for a metapredicate in the translation formula, performed after step (i) (*col. 9, ln. 1-67*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Braden-Harder et al. by incorporating the teaching of Li et al. in order to find all matches that are relevant to the search query.

17. Regarding claim 11, Braden-Harder et al. do not disclose the step (ii) comprises the steps of: (A) testing for improper generality of the translation formula; and (B) altering the generality of the translation formula. However, Li et al. further teach the steps of (A) testing for improper generality of the translation formula (*col. 5, ln. 1-11*); and (B) altering the generality of the translation formula (*col. 5, ln. 31-67, by formulating new and better queries and presenting to users for selection*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Braden-Harder et al. by incorporating the



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teaching of Li et al. in order to narrow down the search to find and extract only information that is relevant to the search query.

18. Regarding claim 12, Braden-Harder et al. do not disclose the step (B) comprising the step of attenuating the translation formula. However, Li et al. further teach the step of generalizing the query by associate the query with terms having similar semantics (*col. 8, ln. 49-67*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Braden-Harder et al. by incorporating the teaching of Li et al. in order to make the query general enough so that all relevant information can be accounted for in the search process.

19. Regarding claim 13, Braden-Harder et al. further disclose the step (B) further comprising the step of performing anti-symmetric linkage, performed before the attenuating step (*col. 12, ln. 30 to col. 13, ln. 67 or referring to figures 5A-C, the graph and sub-graphs construct all possible combinations of word string that includes anti-symmetric linkage*).

20. Regarding claims 14-15, Braden-Harder et al. do not disclose the step (B) comprising the step of argument substitution and the step of argument extraction performed before the argument substitution step. However, Li et al. further teach the

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step (B) comprising the step of argument substitution and the step of argument extraction performed before the argument substitution step (*col. 8, ln. 49-67, retrieval of relevant arguments for the database before associating them with the query argument*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Braden-Harder et al. by incorporating the teaching of Li et al. in order to make the query general enough so that all relevant information can be accounted for in the search process.

21. Regarding claim 18, Braden-Harder et al. do not disclose that the step (a) comprises the step of performing condition insertion. However, Li et al. teach the step of performing condition insertion (*col. 8, ln. 49-50, search objects are automatically associated with relevant semantic objects*).

Since Braden-Harder et al. and Li et al. are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Braden-Harder et al. by incorporating the teaching of Li et al. in order to broaden the search to include all the information relevant the search query.

22. Claims 19-22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (US Patent No. 5933822) in view of Cheng (US Patent No. 5487132).

23. Regarding claim 19, Braden-Harder et al. disclose a method of extending a poorly formalized domain, comprising the steps of: (a) receiving a least one of a query and an answer from an expert (*col. 7, ln. 35-41*); and (b) if the query is received, translating the query into at least one semantic header (*col. 13, ln. 51 to col. 14, ln. 14*);

Braden-Harder et al. do not disclose that (c) if the query and the answer are received, adding the answer and the corresponding at least one semantic headers to the domain, to form an extended domain (*col. 15, ln. 9-63*); and (d) compiling the extended domain (*15, ln. 9-63*). However, Cheng teaches that (c) if the query and the answer are received, adding the answer and the corresponding at least one semantic headers to the domain, to form an extended domain (*col. 11, ln. 26 to col. 12, ln. 67*); and (d) compiling the extended domain (*col. 11, ln. 15-22*).

Since Braden-Harder et al. and Cheng are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to modify Braden-Harder et al. by incorporating the teaching of Cheng in order to broaden the search to include all the information relevant the search query.

24. Regarding claims 20-22, Braden-Harder et al. further disclose a method of providing a query and answer tool adaptable by a client, comprising the steps of: (a) providing a compiled domain to a client (*col. 8, ln. 30 to col. 9, ln. 43*), but fail to disclose (b) enabling an extension of the domain without the assistance of a knowledge

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engineer. However, Cheng teaches (b) enabling (client and authorized users) an extension of the domain without the assistance of a knowledge engineer (*col. 11, ln. 26 to col. 12, ln. 67, allowing authorized users to define domains for data item and alias for a file containing the item*).

Since Braden-Harder et al. and Cheng are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to modify Braden-Harder et al. by incorporating the teaching of Cheng in order to broaden the search to include all the information relevant the search query.

25. Regarding claim 28, Braden-Harder et al. disclose a computer program product comprising a computer usable medium having computer readable program code means embodied in the medium for causing an application program to execute on a computer that extends a poorly formalized domain, the computer readable program code means comprising: (a) computer readable program code means for causing the computer to receive at least one of an answer and a query from an expert (*col. 15, ln. 9-18*); and (b) computer readable program code means for causing the computer to translate the answer into at least one semantic header, if an answer is received (*col. 15, ln. 18-48, a set of logical form triples*).

Braden-Harder et al. do not disclose (c) a computer readable program code means for causing the computer to add the answer and the corresponding at least one semantic header to the domain, if a query and answer are received, to form an

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extended domain; and (d) computer readable program code means for causing the computer to compile the extended domain.

However, Cheng teaches (c) a computer readable program code means for causing the computer to add the answer and the corresponding at least one semantic header to the domain, if a query and answer are received, to form an extended domain (*col. 11, ln. 26 to col. 12, ln. 67, allowing authorized users to define domains for data item and alias for a file containing the item*); and (d) computer readable program code means for causing the computer to compile the extended domain (*col. 11, ln. 15-22*).

Since Braden-Harder et al. and Cheng are analogous art because they are from the same field of endeavors it would have been obvious to one of ordinary skill in the art at the time of invention to modify Braden-Harder et al. by incorporating the teaching of Cheng in order to broaden the search to include all the information relevant the search query.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

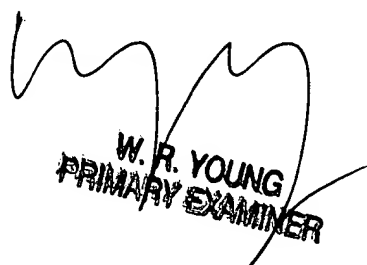
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Examiner Huyen X. Vo

Handwritten signature of Huyen X. Vo, featuring a stylized cursive script with a horizontal line and three asterisks (\*\*\*) to the left.

June 21, 2004

Handwritten signature of W. R. Young, featuring a stylized cursive script with a horizontal line and three asterisks (\*\*\*) to the left.

W. R. YOUNG  
PRIMARY EXAMINER